

Coastal and marine economy: Can it be salvaged from the impacts of poor water quality?

By [Bonani Madikizela](#)

21 Sep 2020

South Africa has one of the highest unemployment (currently above 31% and growing, worsened by Covid-19), poverty stricken and unequal societies in the world. Estuaries and marine ecosystems contribute between R4.2 and R10bn per annum to the South African economy. However, the development of estuaries and their catchments has come at a cost of about R700m per annum in terms of lost fishery benefits as well as unknown costs to society from the overexploitation of natural resources, including biodiversity.



HarryJBurgess via [Pixabay](#)

Beaches retain blue flag status in as long as their waters are clean and healthy for use in recreation. Clean water of acceptable quantity must reach these estuaries and beaches via the inflows from river catchments.

This balance is critical and required by the estuaries as nurseries for many of the marine fish species that local and fisherman rely upon. This represents a huge ocean economy that is under threat from ecosystem degradation. Despite the role of the coast in livelihood of many citizens, these ecosystems are particularly vulnerable.

Deteriorating water quality is driving most of the changes. There have been a significant increase in pollution pressures from wastewater treatment works (WWTW) discharges, amplified by a decreasing ability to treat effluent to required standards. This is further exacerbated by rapid urbanisation, leading to increase storm water discharges. Increased nutrient loading is causing severe eutrophication, resulting in low oxygen levels, and decreasing estuary productivity and important ecosystem services they provide, such as nursery function.

In most extreme cases it causes noxious algal blooms and fish kills. In the long run, it affects recreation value and property values and reduces business opportunities. Poor water quality is also affecting resilience and creating opportunities for invasive species. Some of the South Africa's high energy coastline estuaries provide rare naturally safe environments for contact recreation, such as swimming.

Discharges into estuaries thus puts contact recreation and related tourism opportunities at risk. It is not only sewage that leads the pollution of the coastline, but also plastics.

Microplastic impact

Plastic pollution is a significant concern as plastic material entangle marine animals and, when ingested, untimely lead to deaths through starvation. In fact, studies estimate that by 2050 (only 30 years away), if the circular economy is not operationalised, there will be more tons of plastics in the oceans than fish. With limited recycling, South Africa is estimated to be releasing between 440,000 and 630,000 tonnes of plastic into the environment per year. Much more work needs to be done to establish long-term impacts of the microplastics on the aquatic life, besides the obvious, such as entanglement mentioned above.

According to the World Economic Forum: Future of Nature and Business (July 2020), the global population escalated from 2.5 billion in 1950 to 8 billion people today. The livelihood demands for the population have to be met through amongst others, generation of food, extensive land use, exploitation of oceans and many more activities. In the process of growing the economy, developments have led to an estimated 80% of biodiversity loss, globally. In South Africa this degradation is confirmed through research, where wetlands and estuaries are the worst threatened ecosystems, way above 65%.

Actioning a greener world

The Covid-19 pandemic has resulted in the global contraction of the economy by 3%, with estimations in South Africa being close to 7.1%, a situation never experienced in a century. This has triggered the world debate focused on green economy recovery strategies – this is in recognition of the environment as the foundation for sustainable development.

In fact, the realisation that no economy can be sustained on a sick planet has caught up with every nation. Of all the suffering that Covid-19 has brought with, one of the key lessons noted is that it brought all nations closer together, with politicians listening more to scientists and unanimous calls for action towards a greener world.

With the increasing demand for coastal space and resources on one hand, and the increased commitment to biodiversity conservation on the other hand, serious multi-user conflicts have emerged. In South Africa, estuarine resource management still has a strong single sector focus (e.g. fisheries, conservation, water and waste, marine aquaculture). These are outlined in several pieces of legislation, most prominent being the National Environmental Management: Waste Act, National Water Act, Agricultural Acts, estuarine management plans, marine protected areas, and many more. The SDG:14 calls specifically for the protection of life under water.

As if that is not enough, the UN declared 2021-2030 a decade of ecosystem restoration. Some countries have already moved far ahead on banning of single use plastics, a route South Africa is likely to follow based on the current review of waste regulations. The Water Research Commission and partners are leading in the generation of sustainable integrated blue economy (Oceans economy) models that mainstream ecological infrastructure (healthy ecosystems) with built infrastructure for sustainable developments.

Developing functional roles

The modelling of the blue economy concept through pilot testing proved that more people will benefit from the combination of green economy efforts, such as the circular economy with engineering (built infrastructure) than either applied alone. It is not an either/or, but rather a complementary approach that is critical. Similarly, an online platform for spatial planning was developed and has proven to be a practical, rational tool to facilitate multi-sector resource planning and development of our coastal/marine resources. It is as much the role of researchers to do the innovations, as it is the role of institutions (business/government/society) to implement tested models.

Tourism as one of the core programmes of the Operation Phakisa, is certainly not immune from the extensive ecosystem degradation as outlined above. Climate change projections, including sea level rise, has worsened the situation, necessitating implementation of resilient and ecosystem-based adaptation measures.

Estuaries are under-protected in South Africa with only 18% of estuarine area well protected.

With the collective will by all stakeholders, serious pollution such as where 840 million liters of wastewater (mainly from dysfunctional WWTW), flow daily into estuaries/oceans, can be prevented. This emphasizes the need for strategic interventions across multiple sectors to restore estuarine health and protect benefits they provide to society and economy.

ABOUT THE AUTHOR

Bonani Madikizela is a Research Manager at the Water Research Commission.

For more, visit: <https://www.bizcommunity.com>